

# THE CARAVAN

AS PLAIN AND THE REVEALING

## BHOPAL GAS TRAGEDY

From Inside the  
Mangled Machinery

with a foreword  
by the author

Full Year's Study  
Single Semester

# Bhopal's Slow Leak

*A quarter century after the worst chemical spill in history, an ugly legacy affects both Bhopalis and Dow Chemical*

Jacob Resneck

**T**hey came with rocks. They came with iron bars, sticks and petrol. They toppled scaffolding, tore out timber frames and wrecked foundations. Then with petrol and kerosene carried in jerry cans, they set the wreckage alight. That July morning as the summer heat bore down on the village of Shinde – about 30 kilometres from Pune in the state of Maharashtra – hundreds of Warkari devotees razed a Dow Chemical Corporation building site, slated to be a research and development centre.

“All the machines were burned down,” recalls 57-year-old Vilas Sonawane, a leader of the Lok Shasan movement that opposes Dow. “Then there was a *godown*, the *godown* was burnt down. That is how it took place.”

The violence terminated a bitter standoff. Villagers and Warkari pilgrims united against the police protecting Dow's expansion into the rural Chakan district.

Work has been halted since January 2008 when local villagers boycotted the workers at the site, refusing to sell them food or provide water. The destruction on July 25, 2008 was the work of hundreds of Warkaris, devotees to a 17th century Hindu sect who make an annual pilgrimage to the area during the lunar month of Aashadha. They were convinced the building was too close to sacred sites.

Officials in Maharashtra, long champions of Dow's expansion into

the area, were furious, even accusing the neighbouring state of Gujarat of planting agent provocateurs in the village to steal the 300 jobs promised by Dow.

But this David-and-Goliath story of a farming village of 2,200 people defeating a petrochemical company that last year boasted \$57.5 billion in sales has a back story. It begins more than 800 kilometres away, in the state of Madhya Pradesh.

**I**n India, the name Union Carbide is synonymous with mass death. Twenty-five years ago, Union Carbide Corporation's pesticide plant in Bhopal leaked tons of poisonous gas that killed thousands. The disaster stands alongside nuclear meltdowns like Three Mile Island and Chernobyl as one of the greatest man-made calamities ever.

And Sonawane, the activist, wasn't scared to point out this connection to villagers. “We told them it was quite possible that Bhopal maybe could happen again if this company is situated here,” Sonawane says. “The villagers were convinced; they were really scared.”

Since Dow completed its takeover of Union Carbide in 2001 it's found itself tainted with the past sins of its subsidiary; a connection that company continues to deny.

“Dow never owned or operated the Bhopal plant, Dow does not have responsibility for any issues pertaining to Bhopal,” says Dow spokesman Scot Wheeler via e-mail. Wheeler

notes that Dow completed its purchase of Union Carbide after the company had divested itself of the Indian subsidiary that had owned and operated the Bhopal plant.

But the stigma that Dow inherited in India lives on.

Perhaps that's one reason why the building site in Maharashtra never bore the Dow logo and the company's presence wasn't known until it had been triumphantly announced during a joint statement by Dow and Chief Minister Vilasrao Deshmukh, who said the project would put “this small village on the global R&D map”.

Bhopal is still haunted by the night a tank holding more than 40 tons of methyl isocyanate (MIC) at a pesticide plant in the urban centre ruptured, spewing tons of toxic gases that killed more than 3,000 overnight and maimed thousands more in the early hours of December 3, 1984.

More than two decades later, survivors of that horrific night and their kin continue to suffer from health effects and seek justice from the company and their government. Many claims they have been cast off as collateral damage in India's drive to industrialise and court international investment.

**A**ll that's left of the pesticide plant is a rusting hulk – more a menagerie than an industrial site. The gates are marked with graffiti in Hindi, English, even Spanish, crying out for justice for



*Witness to history: The plant that leaked tons of Methyl Iso Cyanate on a winter night in December 1984 lies abandoned today.*

the people of Bhopal. Nature has spent the past quarter century reclaiming the sprawling site. Trees, vines and other creepers snake their way around the shell of the plant that produced Sevin, a commercial pesticide for India's farmers.

Only the buzz of insects and music from the surrounding bostis — which bore the brunt of the toxic cloud — can be heard around the rusting frame that remains at the epicentre of the world's deadliest industrial disaster.

TR Chouhan went to work for Union Carbide India Ltd. in 1975 to manufacture Sevin. As a plant operator, he earned about Rs. 400 a month, a decent salary for Bhopal. Like many UC workers, he'd relocated from a smaller town in Madhya Pradesh looking for an opportunity to use his education.

Chouhan is a dapper man. A former plant operator with a bachelor's degree in chemistry from Bhopal University, the 55-year-old looks the part of an engineer. Tall and slim with a pressed shirt, he's careful and deliberate whether explaining the reaction process of MIC or lighting a pair of bidi cigarettes.

Pointing to one side, Chouhan shows how naphthol was delivered in solid form and pounded by labourers who would empty gunny sacks of the poisonous powder into vats to be mixed in the production process. Labourers breathed these toxic fumes on a daily basis. It was deemed cheaper and more expedient than a mechanical process prone to breaking down. Plant managers had done their arithmetic: unskilled labour cost less than automating this hazardous work.

But the risks faced by plant workers have long been overshadowed by the gas leak itself. Thousands died in a matter of hours.

**W**hat exactly happened leading up to the evening of December 2, 1984, has long been contentious. Union



AP Images

*Many gas-exposed children are still suffering respiratory problems in adulthood*

Carbide insists that it was sabotage. To this day, the company blames a lone disgruntled worker deliberately pouring water into a tank holding 42 tons of MIC that started the runaway reaction.

To former plant operators like Chouhan — an invaluable informant for the Central Bureau of Investigation's criminal case against the company — this theory is both insulting and preposterous. No worker would willingly expose himself and the community

to a toxic release, he argues.

Instead, Chouhan blames a catalogue of cost-cutting procedures by the plant's management that disabled safety measures, making the accident inevitable.

"This theory is totally wrong," Chouhan says of the sabotage claim. He explains that if plain water had been poured directly into the tank — as Union Carbide claims — then the runaway reaction process would have taken 23 hours.

"But on that night the reaction



*Many animals near the plant reportedly died within minutes of the explosion*

completed within two and a half hours,” he continues. “That is not possible if you put water into the tank.”

**M**aintenance logs show that routine water-washing of the plant’s lines began at about 8:30 pm on December 2. Failure to isolate the tanks using metal discs – known as slip-blinds – meant that water was able to back-wash from clogged lines into a malfunctioning tank that was not holding pressure. Because of the lack of pressure, gallons of water were able to seep into this tank holding 42 tons of MIC. This started a chemical reaction that burst just past midnight on December 3rd.

Chouhan posits that the rapid runaway reaction was accelerated by impurities caught up in the lines – iron rust and sodium compounds mostly – that were washed into the

tank acting as a catalyst that sped up the exothermic reaction. The result was a release of pressure and toxic gases. The plant’s safety systems had been disabled for economic reasons but even if they hadn’t been, this toxic release exceeded anything the plant had been designed to handle.

“Ultimately, they bypassed so many safety systems,” Chouhan says. “They concentrated on the production of Sevin.”

There was no disaster plan to warn the community that night. By all accounts, civil response was nonexistent for several days as mass panic reigned and people were left to fend for themselves – and each other.

The horrors of December 3 have been thoroughly reproduced in books, articles, radio broadcasts and documentary films. The death toll was estimated to be 3,000 by the

government. Untold numbers burned in pyres or were shovelled into mass graves with heavy equipment, depending on their religion.

Doctor Subodh Varshney heads the gastrointestinal department at Bhopal Memorial Hospital but 25 years ago he was one of scores of medical students pressed into service that night to work in the city hospitals that were collapsing from masses of dead, dying and panicked people.

The official death toll, he says, is still incomplete.

“These [3,000 people] were the deaths in institutions. Those that died on the road, they were taken away directly for mass burial. I am sure nobody could have calculated that.”

After passing legislation that made it the sole advocate for victims, the Indian government filed a claim in New York against Union

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Carbide for more than \$3 billion. The case was rejected by a New York judge on condition that the company submit to the laws of India and appear to answer whatever charges were filed in Bhopal.

The case was transferred to Madhya Pradesh Court in Bhopal but negotiations continued to reach an out-of-court settlement. Union Carbide ultimately agreed to pay \$470 million to the Government of India in return for a release of all liability – civil and criminal – related to the disaster.

The settlement was based on a calculation of around 105,000 gas-affected people including 3,000 dead. Yet after adjudication more than 574,000 claims were processed and awarded. The vast majority received initial payouts of just Rs. 25,000 per person.

The Indian government's abrupt and relatively paltry settlement has long been a source of continued anger and confusion in Bhopal.

One academic in New York may be able to offer at least part of the answer.

**B**ruce Bueno de Mesquita uses computer models to predict outcomes of complex negotiations. A political science professor at New York University, he consults for firms facing serious bargaining dilemmas.

He recently published *The Predictioneer's Game* that explains his method of using game theory to identify the self-interest of negotiating parties and then plots the most likely outcome through a computer model.

In 1988, his firm Polycon was retained by Union Carbide to help to model a favourable settlement with the Indian government. Mesquita said Union Carbide found a willing bargaining partner in Prime Minister Rajiv Gandhi. But as much as the government wanted to settle and wash its hands of the affair, it was afraid of the political backlash.

He says several handshake agreements between the company and prime minister unravelled when word leaked to the press.

Mesquita, who wrote his 1971 doctoral dissertation on Indian politics, says the government was loathe to come down too hard on a multinational like Union Carbide. At the same time, they faced intense political pressure to push for justice.

Mesquita interviewed a collection of US and Indian experts and then fed the problem into his computer, which spit out a likely solution. "My model said they could have settled for as little as something like \$350 million, provided they gave Rajiv Gandhi the right political cover," Mesquita recalls in a telephone interview from New York.

Mesquita ultimately advised Union Carbide to draft a settlement between \$350 million and \$3.2 billion that could be announced by an outside party to deflect the heat from the prime minister.

On February 14, 1989, Chief Justice Rajinder S Pathak announced a \$470 million settlement that he said would be in the best interests of the victims who had not – more than four years since the disaster – received a single *paisa* in relief.

"They followed the coalition strategy that I designed," Mesquita says, "that was really the main focus, assembling a coalition and then getting the deal announced by someone seen as a prestigious neutral party."

Mesquita says that throughout the negotiations Union Carbide executives actually appeared concerned for the welfare of the victims. Previous offers to build and staff a hospital and other forms of direct aid had been rejected by the Indian government. They presumably didn't want any goodwill gestures to prejudice a final settlement.

"They were very concerned," Mesquita says of Union Carbide executives. "This was a horrible accident and a lot of people died. They

believed that it was sabotage but they talked a lot about the victims."

This view is reiterated on [www.bhopal.com](http://www.bhopal.com) website, which contains the company's version of events.

While the Supreme Court and Indian government claimed they rushed to settle on the cheap to mitigate the ongoing plight of survivors, it wasn't until 1992 that the first claims were processed and cash reached the people of Bhopal. The payments were miserly by modern standards – the settlement of 1989 envisioned Rs.1 to 3 lakh per death; Rs. 50,000 for permanent disability; Rs. 25,000 for partial disability and downwards to Rs. 10,000 for loss of livestock.

This was based on a count of 105,000 gas-affected people – including 3,000 dead. But by the time claims were processed, more than 574,000 cases were found to be gas-affected and eligible for compensation. Because of the heightened casualties, the settlement was spread very thinly. The average payout for personal injury hovered just above the court-stipulated minimum of Rs. 25,000.

Corruption was also endemic at all levels. Desperately poor gas victims paid thousands of rupees to lawyers and fixers to navigate the Byzantine system of claims. Others encountered outright graft on the bench.

**S**arita Dubey was 12 years old at the time of the leak. She and her family lived six kilometres away but felt the effects that night and continue to have breathing trouble, she says. She and her mother filed claims for compensation and free health care.

By the time her claim was processed, she was in her early '20s. "The judge told me I could get Rs. 25,000 the next morning but I'd have to pay Rs. 5,000 to his chambers that night," she claims. "I didn't pay and so I got nothing. My



*Families who lost loved ones were offered just Rs. 1-3 lakh in compensation*



*A family sits near the entrance of the Union Carbide plant*

mother paid so she got Rs. 25,000.”

While the 1989 settlement released Union Carbide from further liability for injuries, it also explicitly left the door open for the Government of India to further aid survivors.

Bhopal Gas Peedith Mahila Udyog Sanghathan (BGPMUS) is one of several survivors' groups filing lawsuits seeking further compensation from the government.

Abdul Jabbar of BGPMUS has prepared a brief taking the state Welfare Commissioner to High Court asking it to justify its methodology for paying out claims. He argues that as the original settlement was designed for 105,000 victims, the true number has been found to be more than five times that and victims need to be remunerated accordingly.

Jabbar is a slightly stooped man in his 60s who can rattle off the personal phone numbers of senior ministers and bureaucrats by memory. He sometimes speaks in hyperbolic terms. He says, for instance, that things are exactly as they were 25 years ago. But he seems keyed in to the residents of surrounding bostis and continues to pressure the state government to react.

Many neighbourhoods, he points out, are still forced to drink contaminated water from the waste improperly stored on the site, which now falls under the state's purview.

Since 2004, the state of Madhya Pradesh has been under a Supreme Court order to provide safe water to the gas-affected areas. The Ministry of Gas Relief and Rehabilitation says already 12 out of 14 colonies have been connected and expects to have the project completed by the end of November.

If that is true – and NGOs say they are sceptical – it's been a long wait; groundwater contamination, first detected by Union Carbide's internal company documents, show the plant managers were aware of waste leakage as early as 1982.



*Former union Carbide CEO Warren Anderson remains a fugitive from Indian courts*

AP Images

Activists call the plant's waste Bhopal's "second disaster". During the plant's six years of operation, waste was routinely dumped in evaporation ponds around the site. Union Carbide's own engineers warned during the design phase that these ponds could leach into the surrounding water table.

Efforts to clean up the site have not progressed very far. In 2005, the Ministry of Agriculture and

Fertilizers asked Dow to pay a Rs. 100 crore deposit towards the cost of final cleanup. So far Dow has balked. It's a thorny issue for the company.

Shareholders have already voiced concerns that Dow may be concealing its Bhopal-related liabilities. In May 2007 a coalition of concerned shareholders, holding about \$305 million worth of Dow stock, introduced resolutions calling on the

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company to acknowledge its liabilities inherited from Union Carbide. The shareholders included campaigners like Amnesty International as well as larger public sector investors like the New York City Pension Funds and New York State Common Retirement Fund.

“Dow has inherited a legacy connected to Union Carbide, and we believe that addressing any outstanding liabilities that exist is absolutely necessary if Dow is to ensure expansion in the critical Indian market,” said New York City Comptroller William C Thompson, Jr. in a joint statement with Amnesty International explaining its action. He added that the company has a “fiduciary obligation” to be a good corporate citizen wherever it does business.

But Dow spokesman Scot Wheeler reiterated the company’s line that when Dow bought Union Carbide, “it was with the understanding that Union Carbide had settled its civil liability with the Government of India, and that the Government and Indian Courts honour their decisions and their commitments.”

**T**he Indian government still hews to the company line. Union Minister of Environment and Forests, Jairam Ramesh, still adjusting to his new role as a spokesman for the trees, visited Bhopal on September 14. There, as the television cameras rolled and flash bulbs popped, he downplayed the extent of the contamination by picking up a handful of waste on the site and remarking, “I have held that waste in my hand, I am still alive.”

Ramesh went even further, appearing to side with Union Carbide’s version of events that the disaster wasn’t caused by the company negligence.

“If I were to tell you why the Bhopal tragedy happened,” Ramesh told reporters, “the truth is very

uncomfortable. The truth about how it happened is itself very questionable.”

Reaction in Bhopal was swift. The next day protestors burned an effigy of the minister in the centre of town that resulted in a violent confrontation with police and 13 arrests.

The effigy burning is a storied tradition amongst gas victims in Bhopal – though the honour is usually reserved for former Union Carbide CEO Warren Anderson. (Anderson remains a fugitive from Indian courts despite several extradition attempts. He’s now retired in The Hamptons, the posh seaside resort community two hours from New York City.)

Despite repeated attempts, Ramesh did not respond to *The Caravan’s* interview requests. But in an email to activist groups obtained by the magazine, the minister “apologised unreservedly” for any offence he caused to survivors. He claimed his orchestrated visit had meant to convince that the waste could be removed and incinerated safely despite opposition from people living nearby the incinerators.

Activists suspect that Ramesh’s remarks about “uncomfortable” truths are coded language meant to assuage Dow Chemical’s liability fears that the company claims prevents it from fully investing in India.

Indeed, documents uncovered through Right To Information requests show an internal memo from the Prime Minister’s Office dated February 2, 2008. In it, the Department of Chemicals and Petrochemicals had asked for a legal opinion over Dow’s liability for the cleanup of the former Union Carbide plant. The memo noted that “Dow has proposed to invest \$1 billion in India and was seeking an assurance from the Government of India that their executives should be able to visit India freely to take care of their business interests while simultaneously attending to the pending civil cases against them.”

The question was referred to the Ministry of Law which stated that “irrespective of the manner in which UCC was merged or has been acquired by Dow Chemicals, if there is any legal liability it would have to be borne by Dow Chemicals.” It further concluded that “it cannot be said that the investment proposed to be made by the Dow Chemicals (sic) will be immune from the orders of the Court.”

Chennai-based journalist and activist Nitayand Jayaraman says this document proves that Dow’s planned investment in India is being held up by liabilities inherited by Union Carbide.

“That scared the living daylights out of them,” Jayaraman says of the government’s legal opinion. “They’ve been lobbying the government to drop that.”

But Dow spokesman Scot Wheeler says it’s “absolutely not the case” that liability from Union Carbide has hindered its expansion into India.

“We are confident about Dow India’s future success and we look forward to being a part of India’s continued economic development.”

But Dow’s expansion into India is moving slowly. A deal between Dow and Indian Oil to build a mono ethylene glycol production facility at a refinery in Panipat collapsed over Union Carbide liabilities. Bhopal campaigners were able to prove that technology used in the plant had been developed and patented by Union Carbide – which Dow had not disclosed – and this led Indian Oil to cancel the deal due to Union Carbide’s outstanding liabilities. This linkage was confirmed in an October 28, 2005 letter from the Minister of Petroleum and Natural Gas’ private secretary to activists in Bhopal.

**B**ut NGO victories over a mighty multi-national provide no physical comfort to gas-affected people. A visit to the

low-roofed bostis that surround the shuttered plant confirms this. Many people suffer from the long-term health effects of living in a toxic community.

In the JP Nagar neighbourhood, adjacent to the former plant's main entrance, lies a bosti of low-roofed dwellings and streets just wide enough to allow a motorcycle and several goats to pass. The people who lived here are some of the worst affected, living just a few hundred metres from the MIC tank that breached.

Mohammed Arif was only 18 months old when the gas leaked. He regularly sees a doctor for respiratory problems but is able to hold a job driving an auto rickshaw. His father fared much worse.

Sitting on the stoop of their dwelling, 55-year-old Mohammed Rafik Arif is a former farm labourer who hasn't worked since the gas struck. He's not lazy; one look at him and it's apparent he is sick. He barely speaks, and his eyes stare listlessly at the strangers enquiring about his family's health and welfare. Both father and son say they received just Rs. 25,000 each in compensation.

Helping people like the elder Arif – whose son says doctors have been unable to relieve his suffering – has been a challenge. Medical professionals can prescribe medicines for symptoms but find long-term cures elusive.

"Because some of the permanent damage like visual and respiratory, they have given them permanent changes," says Doctor CB Rohitas who works in the city-run Jawaharlal Nehru Hospital, the closest facility to the former plant. "They



*A quarter century after the leak, Union Carbide maintains it was caused by sabotage*

AP Images

even come with asthmatic problems or respiratory distress and chronic pulmonary disorders."

Predominately Muslim, JP Nagar was one of the worst affected neighbourhoods. Ninety-one percent of its residents received Rs. 25,000 – the lowest compensation available, according to a 2002 survey by the Sambhavna Trust, a free neighbourhood health clinic.

Many allege discrimination by the Madhya Pradesh government in disbursing the settlement.

In 2003, the Bharatiya Janata Party (BJP) came to power in the state and immediately began pushing a new agenda for gas victims in Bhopal. Former Chief Minister Babulal Gaur is a veteran BJP politician and now heads the state's Ministry for Gas Relief and Rehabilitation. In an interview from his leafy residence in New Bhopal, the 79-year-old Gaur says 20 wards were incorrectly deemed unaffected in 1984 and ineligible for compensation.

"Only 36 wards got compensa-

tion," Gaur says. "Twenty wards have not received any money. We are claiming from the Government of India that they have to pay. But 20 wards they have not gotten any rehabilitation."

These same 20 wards also happen to house mostly middle-class Hindus, a major BJP's stronghold in the city. By contrast, many of the neighbourhoods hardest hit were poor Muslims and Hindus of lower castes, says Satinath Sarangi, an activist who heads the Sambhavna Trust.

"Both the state government and the central government have decided that these are expendable people," Sarangi says.

**T**he flagship hospital ostensibly built to ease the suffering of gas victims was placed miles away from the eye of the storm. Just past the city's outer greenbelt lies the sprawling 87-acre Bhopal Memorial Hospital and Research Centre. The campus has become a favourite target of survivors' groups who say the government's



AP Images

*There is still no definitive record of casualties*

largesse has left out gas victims.

Built with about Rs. 187 crore from Union Carbide Corporation's sale of Union Carbide India Ltd. stock and a sizable chunk of public money, it treats a mix of gas-affected people and private patients. Called the "Taj Mahal" by its detractors, it certainly looks opulent and is sited far from the gas-affected population. Added amenities like a health club and swimming pool for its staff hasn't improve its image.

Doctor Varshney, who heads the gastrointestinal department, says about 70 percent of the patients he sees are gas victims. He says NGOs are miffed that the trust that runs

the hospital keeps community groups at arms-length.

"I think they wanted to get involved with this hospital in some way, on the board or something," he says. "The hospital has really kept everyone quite far away."

The hospital has had trouble retaining its skilled doctors and surgeons. Doctor Skand Trivedi, who heads the cardiology department, says that's because the hospital doesn't pay its doctors and specialists enough. "Because this hospital is not able to pay good salaries to its doctors in many specialties there is no doctor," he says.

Hospital Director, Doctor KK

Maudar, acknowledged that staffing was an issue because of competition from private facilities but said that gas patients "are given treatment and given medicine of the latest nature and which nobody can deny or challenge."

**S**tark divisions still divide Bhopal. Bhopal's old downtown, with its grandiose Islamic architecture, literally crumbles amidst the dust of chaotic traffic and light industry. Just a mile up the road, across the river, New Bhopal literally rises up with jewellery shops and designer clothing stores. The newer, affluent population sits on a plateau that overlooks the choked inner-city.

In New Bhopal, an auto dealership has taken "Bhopal Moves On" as its slogan and emblazoned it on the cars it sells. Many well-to-do Bhopalis resent the fact that their city – the capital of Madhya Pradesh – continues to be associated with mass death and poverty.

Back in Maharashtra where Bhopal's legacy still plagues Dow, the battle has taken a backseat while the state holds elections. The Maharashtra government has commissioned a new report to recommend the best way forward.

Dow is still interested in Maharashtra. It already has a 150-scientist R&D facility nearby Pune and is intent on expanding into the village of Shinde.

"We are currently awaiting the results of the second committee report convened by the state government," writes Dow Chemical spokeswoman Louise Adhikari in an email to *The Caravan*.

But the activist Vilas Sonawane says he suspects that the report is being held until after a new party comes to power. The group is steeling itself for a new fight, whoever is elected.

"It doesn't matter," he says, "because Dow has purchased everybody." □